

REMARKS/ARGUMENTS

Claims 1-43 stand rejected in the outstanding Official Action. Applicants have amended claims 1, 17-19, 32-35, and 41-43 and offered newly written claims 44-49. Therefore, claims 1-49 are the only claims remaining in this application.

The Examiner's indication of acceptance of the formal drawings submitted January 4, 2005 is very much appreciated. The Examiner's withdrawal of previous objections to the specification and claims is also very much appreciated.

Request for Clarification as to Bases for Rejections

Applicants respectfully request that the Patent Office provide a clarified Official Action. In reviewing the outstanding 33-page Official Action, Applicants find objections to the claims and the specification, rejections of claims and various bases and arguments in support thereof scattered haphazardly throughout the Official Action.

For example, there is a rejection of claim 34 in section 1, page 3, under 35 USC §112 and another argument with respect to claim 34 in section 3 on page 4 without any bases for rejection. Is this supposed to be a different rejection or a further discussion of the same rejection?

It is noted that there are discussions of rejections under 35 USC §102 in the paragraph bridging pages 5 and 6 with a rejection based upon "new grounds" under 35 USC §112 in the paragraph bridging pages 6 and 7. There is a heading suggesting a discussion of rejections under 35 USC §103 on page 9 and then a heading entitled "outstanding objections and rejections" on page 10. Additionally, on page 10 there is a specification objection and a rejection of claims under 35 USC §101. On page 11 there is another discussion of claim rejections under 35 USC §112. There appears to be another different rejection of claims 1-43 under 35 USC §112, also

first paragraph, as allegedly failing to comply with the enablement requirement on page 14.

However, there appears to be a second paragraph, §112 rejection on page 20.

On page 21, there is an indication that certain limitations in claims were being interpreted in a certain fashion. However, on page 22, there is a rejection under 35 USC §102 and on page 27, yet another rejection of claims under 35 USC §103.

Applicants would find it exceedingly helpful if the Examiner placed the objections and rejections in conventional serial form as are most U.S. PTO Official Actions, i.e., objections to the specification first, objections to the claims second, and then the bases for rejections, with the bases starting with §101 (non-statutory), §112 (first and second paragraphs), §102 (anticipation) and finally §103 (obviousness). If under the headings of these major sections, the Examiner would separately number each separate basis for objection and/or rejection, this would enable Applicants to succinctly respond to the issues as requested by the Examiner.

Given the perceived haphazard nature of the present Official Action, Applicants will attempt to respond to those issues in the order raised in the outstanding Official Action.

Response to Rejections

Claim 34 stands rejected under 35 USC §112 (second paragraph). Applicants have amended claim 34 to positively recite that the reduced model comprises software, thereby obviating any further argument as to what comprises the "reduced model" set out in claim 1. Therefore, any further rejection of claim 34 under 35 USC §112 is respectfully traversed.

Claims 18 and 33 stand rejected under 35 USC §101 as allegedly comprising non-statutory subject matter. Applicants have amended claims 18 and 33 to recite "a computer program embodied on a computer-readable medium and comprising computer readable code

that, when executed, controls a computer to perform the method" of the parent claim. Applicants have specified the carrier as a "computer-readable medium," thereby limiting it to only tangible embodiments and therefore claims 18 and 33 are now clearly statutory. As a result, any further rejection of claims 18 and 33 under 35 USC §101 is respectfully traversed.

The Examiner suggests that with respect to claim 34, the claimed "reduced hardware model" is an abstraction. Applicants have amended claim 34 to specify that the "reduced hardware model" is "embodied in hardware" and is clearly a tangible apparatus, thereby obviating any rejection. However, it is noted that in paragraph 3 on page 4 of the Official Action, there is no statutory basis for rejection of claim 34 which has been submitted. However, in view of the above amendment, it is believed that no basis currently exists for rejection of the amended claim.

In the paragraph bridging pages 6 and 7 of the Official Action, there appears to be a new ground of rejection under 35 USC §112 and yet there is no specific actual rejection based upon this section. However, in order to obviate any actual rejection, Applicants have deleted the language "without requiring a periodic sampling reference for output signals of said subsystem circuit model" from each of the independent claims 1, 17, 19, 32, 35 and 41 (it is noted that the rejection bridging pages 6 and 7 of the Official Action does not include a reference to claim 1, but it is presumed the Examiner intended the same rejection in claim 1). Since the Examiner has contended he cannot understand the subject matter, deletion of the phrase does not add subject matter and should serve to improve the clarity of the claims.

Turning to the rejection under 35 USC §102, claims 1-5, 12-14, 16-21, 28-30 and 32-35 stand rejected under 35 USC §102 as being anticipated by Gupte (U.S. Patent 5,903,475). A

difference between the present invention and known systems for modeling data processing systems is that in accordance with the present invention, input and output signals **are not sampled periodically**, but instead are recorded in response to the change in those signals.

As discussed in the summary of the invention (page 4, lines 12-17), the present invention allows more sophisticated types of analysis and results in a reduced model that is more flexible and more compact than known systems. This is a result because the present invention does not rely on a simple cycle-based approach (as in Gupte) in which test vectors are applied and responses recorded (effectively using a periodic sampling interval). The present invention does not force any artificial timing restrictions due to cycle-based sampling approaches.

Each of Applicants' independent claims 1, 17, 19, 32, 35, 40, 41 and 44 recite either the step or apparatus for "recording, in response to a change, input signals to and output signals from said subsystem circuit whilst performing said test sequence of data processing operations." Because Gupte at column 2, lines 7-22 merely discloses that "golden vectors" captured during a full system simulation are used to test an Application Specification Integrated Circuit (ASIC) during stand-alone simulation, there is no suggestion that there is recording in response to a change.

Should the Examiner contend that the limitation noted above with respect to Applicants' independent claims is disclosed in the Gupte reference, he is respectfully requested to point out where this disclosure is contained in Gupte.

Applicants' contention is that the suggested portion of Gupte at column 9, lines 18-21 discloses that input vectors are stored as a test bench input file so the ASIC during stand-alone simulation will receive the same inputs as in the system simulation. Gupte at column 6, lines

53-64 discloses that the golden vectors are captured and used to test the ASIC during stand-alone simulation, and the outputs generated by the ASIC are then compared to the outputs generated during the system simulation. None of the above passages of Gupte disclose or suggest the subject matter of Applicants' independent claims and any further rejection thereunder is respectfully traversed.

In section 4 of the Official Action suggests that independent claim 35 is somehow rejected under the Gupte reference. The above comments regarding independent claim 35 and its recitation of "recording, in response to a change, input signals to and output signals from said subsystem circuit whilst performing said test sequence of data processing operations" clearly distinguishes the Gupte reference.

On page 9 of the Official Action, the Examiner rejects claims 6-11 and 22-27 under 35 USC §103 as unpatentable over Gupte. Inasmuch as claims 6-11 depend from claim 1 and claims 22-27 ultimately depend from claim 19, the above comments distinguishing claims 1 and 19 from the Gupte reference are herein incorporated by reference. Again, should the Examiner believe there to be any portion of the Gupte reference that suggests "recording, in response to a change, input signals . . .," he is respectfully requested to identify the specific teaching in the Gupte reference.

The Examiner apparently rejects claims 15 and 31 under 35 USC §103 as unpatentable over Gupte in combination with Rostoker (U.S. Patent 5,544,067). In as much as claims 15 and 31 depend from claims 1 and 19 respectively, the above arguments distinguishing over the Gupte reference are herein incorporated by reference. The Examiner does not allege that Rostoker

teaches the missing subject matter from the Gupte reference, i.e., "recording, in response to a change, input signals . . ."

As noted above, this claimed subject matter is not disclosed in Gupte and, since it is not alleged to be disclosed in Rostoker, even if these references were combined, they cannot render obvious the subject matter of Applicants' claims 15 and 31 under 35 USC §103. Should the Examiner contend that these features of the claims are disclosed in Rostoker or Gupte, he is respectfully requested to identify any specific teaching or suggestion.

Moreover, the Examiner has not provided any "reason" or "motivation" for the combination of the Gupte and Rostoker references. Where or how the Examiner contends there is any such reason or motivation is not seen and clarification is respectfully requested.

In fact, it is noted that Gupte, using a cycle-based approach to record input signals to and output signals from the subsystem unit during the full simulation, would clearly lead one of ordinary skill in the art away from Applicants' claimed invention. It is noted that Gupte specifies at column 9, lines 2-8 that "all outputs are assumed to be synchronous and periodical." Thus, Gupte clearly teaches that a cycle-based approach is suggested and being adopted, rather than Applicants' approach where sampling is performed "in response to changes" in the output signals.

The clear benefit of Applicants' system is that the reduced model is more flexible and more compact and allows more sophisticated types of analysis by recording signals in response to a change, rather than using the cycle-based sampling approach. One consequence of the Gupte cycle-based sampling approach is that it generates impractically large file sizes.

Applicants' recordation in response to a change, rather than the cycle-based sampling approach, keeps file sizes on a much more manageable level.

Claims 18, 33, 34, 42 and 43 also stand rejected under 35 USC §101 as being non-statutory subject matter on page 10 of the Official Action. Claims 8, 33 and 42 have all been amended to recite "a computer program product embodied on a computer-readable medium and comprising a computer readable code that, when executed, controls a computer to perform" the method of the parent claim. These amended claims meet the requirements of 35 USC §101 and any further rejection thereof is respectfully traversed.

Claims 34 and 43 are objected to as reciting a "data abstraction" not claimed. Claims 34 and 43 have both been amended to recite that in claim 34 the reduced hardware model is "embodied in hardware" and that the "reduced model comprises software." As a result, the amended language is believed clearly statutory.

As a result of the amendments to claims 18, 33, 34, 42 and 43, these claims are believed to be in statutory form and any further rejection thereunder is respectfully traversed.

On page 11 and section 11 of the Official Action, claims 1-43 stand rejected under 35 USC §112 (first paragraph) as failing to comply with the written description requirement. The Examiner identifies aspects of pages 12, 16, 19 and 20 of Applicants' specification. Applicants have amended the specification to either delete the offending phrases or make the phrases somewhat more definite.

Specifically, the objections to phrases on pages 12, 16 and 20 have been deleted, with the phrase on page 20 amended to read "this can be implemented." Applicants will also note that a concrete teaching of how to implement the invention is provided by the description as a whole,

including that of Figures 2-7. It is to be remembered that Applicants' disclosure need not be sufficient to teach anyone the invention – it is only necessary that it be sufficiently detailed to teach those having ordinary skill in the art. It should be noted, and is perhaps appreciated by the Examiner, that those of ordinary skill in this particular art are extremely fluent with computer programming and automated test programs.

How or why the Examiner believes claims 1-43 are not supported in Applicants' originally submitted specification is not seen. However, the various objections noted with respect to specific clauses in Applicants' specification have been obviated by the above amendments and any further objection thereto is respectfully traversed.

Applicant has amended the specification to identify the trademark VERILOG® and to identify the generic equivalent. VDHL is also identified although this is not believed to be a trademark.

Applicant also offers newly written claims 44-49 for consideration. Entry and consideration of these claims is requested.

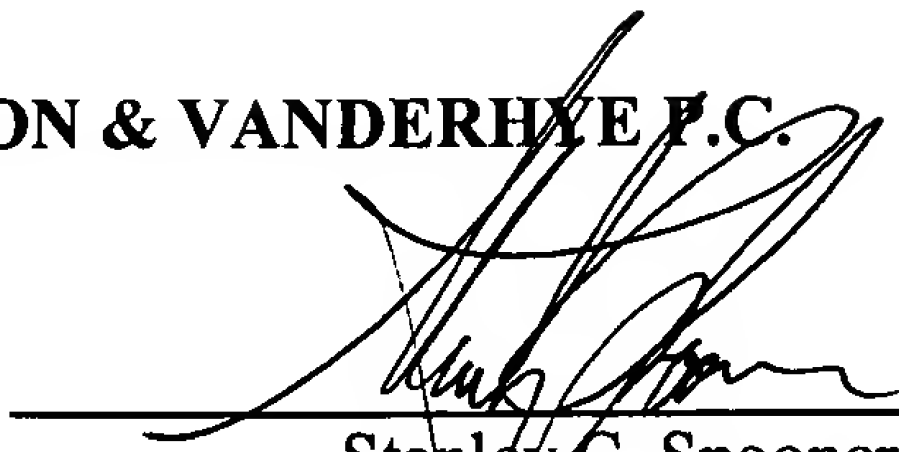
The various rejections under §102 and §103 have previously been discussed in detail. Having responded to all objections and rejections set out in the official action, it is submitted that claims 1-49 are in condition for allowance and Notice to that effect is respectfully requested. In the event that a personal or telephone interview will facilitate allowance of one or more of the above claims, the Examiner is requested to contact applicant's undersigned representative.

HOULIHANE et al.
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Respectfully submitted,

NIXON & VANDERHIE P.C.

By:



Stanley C. Spooner
Reg. No. 27,393

SCS:kmm
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100